

**CLAIMS**

What is claimed is:

SUBA(1)

1. A method for row version differentiation  
5 in a database management system comprising:  
identifying a versioned table to said database;  
creating a logical primary key comprising a  
prescribed number of columns in the versioned table, the  
logical primary key being created in a physical primary  
10 key of the versioned table;  
defining at least one column of the physical  
primary key as a version effective reference value;  
deriving version differentiation criteria  
information from a version differentiation predicate  
15 included in a request submitted by a database user, the  
version differentiation predicate including a name of the  
versioned table defined to a database, a target effective  
status, and a target value for version differentiation  
processing; and  
20 retrieving rows of the versioned table that  
satisfy the version differentiation criteria derived from  
the version differentiation predicate by comparing the  
effective reference values of the versioned table with  
the version differentiation criteria.  
25
2. The method for version differentiation of  
Claim 1 wherein said version effective reference value is  
a version effective start value, the method for version  
differentiation further comprising:  
30 identifying of a version effective end value  
that does not participate in said physical primary key of  
said versioned table;  
said retrieving of rows from the versioned  
table including comparing the effective end values of the

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versioned table with the version differentiation criteria.

3. The method for version differentiation of  
5 Claim 2 further comprising:

defining an effective window for each row of  
the versioned table as a function of the effective start  
value and the effective end value for each row in the  
versioned table; and

10 validating the effective window for one row of  
the versioned table to ensure that the effective window  
for the one row of the versioned table does not overlap  
with effective windows for other rows of the versioned  
table having logical primary keys matching the logical  
15 primary key for the one row of the versioned table.

4. The method for version differentiation of  
Claim 1 further comprising:

identifying to said database management system  
20 a referential constraint specifying as a parent said  
versioned table; and

ensuring that rows exist in the versioned table  
such that the values of their logical primary keys  
correspond to the values of the columns of a dependent  
25 table identified in the referential constraint for an  
existing row of the dependent table.

5. The method for version differentiation of  
Claim 4 wherein said version effective reference value is  
30 a version effective start value, the method for version  
differentiation further including:

identifying a row of the dependent table during  
the definition of said referential constraint for use as  
a referential constraint effective start value; and

comparing said referential constraint effective start value and said versioned effective start value.

6. The method for version differentiation of  
5 Claim 5 further including:

identifying a row of the dependent table,  
during the definition of said referential constraint,  
for use as a referential constraint effective end value;  
and

10 comparing said referential constraint effective  
start value to said versioned effective start value and  
said effective end value.

7. The method for version differentiation of  
15 Claim 6 further comprising:

defining a referential constraint effective  
window for each row of the versioned table as a function  
of the referential constraint effective start value and  
the referential constraint effective end value for each  
20 row of the versioned table; and

validating the referential constraint effective  
window for one row of the versioned table to ensure that  
the referential constraint effective window for the one  
row of the versioned table does not overlap with the  
25 referential constraint effective windows for other rows  
of the versioned table having logical primary keys  
matching the logical primary key for the one row of the  
versioned table.

30 8. A method for row version differentiation  
in a database management system comprising:

identifying a versioned table to said database;  
creating a logical primary key, comprising a  
prescribed number of columns in the versioned table, the

logical primary key being created in a physical primary key of the versioned table;

defining at least one column of the physical primary key as a version effective reference value;

5 deriving version differentiation criteria information from a version differentiation predicate included in a request submitted by a database user, the version differentiation predicate including a name of the versioned table defined to a database, a target effective  
10 status, and a target value range as defined by a target start value and a target end value that are included in said version differentiation predicate; and

retrieving rows of the versioned table that satisfy the version differentiation criteria derived from  
15 the version differentiation predicate by comparing the effective reference values of the versioned table with the version differentiation criteria.

9. The method for version differentiation of  
20 Claim 8 further comprising:

validating said target value range for one row of the versioned table to ensure that target value range for the one row of the versioned table does not overlap with the target value ranges for other rows of  
25 the versioned table having logical primary keys matching the logical primary key for the one row of the versioned table.